Agilent U1251A and U1252A Handheld Digital Multimeter

Quick Start Guide

The following items are included with your multimeter:

✔Standard Test Lead Kit (test leads, alligator clips, SMT grabbers, fine tip test probes, mini- grabber)

✔Soft carrying case

✔Printed Quick Start Guide

✔CD containing the User's Guide, application software and instrument drivers

✔9 V alkaline battery (for U1251A only)

✔Rechargeable 7.2 V battery (for U1252A only)

✔Power cord & AC adapter (for U1252A only)

✔Certificate of Calibration

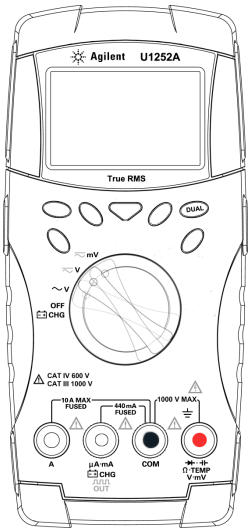
If anything is missing, contact your nearest Agilent Sales Office.

WARNING **Ensure the terminal connections are correct for that particular measurement before any measurement. To avoid damaged to the device, do not exceed the input limit.**

Performing Voltage Measurement

Measuring AC Voltage

1. Set the rotary switch to ∼V . For ≂V and ≂mV mode, press SHIFT to ensure ∼ is shown on the display.
2. Connect the red and black test leads to input terminals **V. mV(red)** and **COM(black)** respectively.
3. Probe the test points and read the display.
4. Press DUAL display dual measurements. Parameter can be switched consecutively.



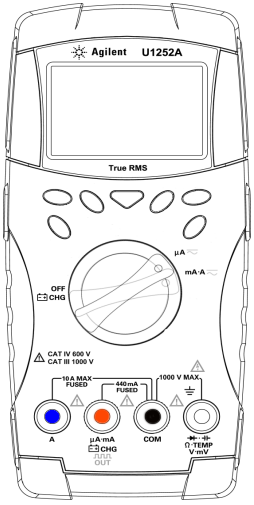
Measuring DC Voltage

1. Set the rotary switch to ≂V and ≂mV. Ensure ⎓ is shown on the display.
2. Connect the red and black test leads to input terminals **V. mV(red)** and **COM(black)** respectively.
3. Probe the test points and read the display.
4. Press DUAL to display dual measurements. Parameter can be switched consecutively.

Performing Current Measurement

Measuring AC Current

1. Set the rotary switch to µA≂ and mA·A≂. Press SHIFT to ensure ∼ is shown on the display.
2. Connect the red and black test leads to input terminals **µA.mA(red) and COM(black) or A(blue)** and **COM(black)** respectively.
3. Probe the test points in series with the circuit, and read the display.



Measuring DC Current

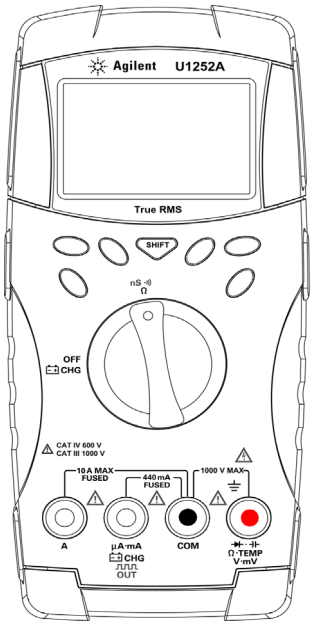
1. Set the rotary switch to µA≂ and mA·A≂. Ensure ⎓ is shown on the display.
2. Connect the red and black test leads to input terminals **µA.mA(red)** and **COM(black)** or **A(blue)** and **COM(black)** respectively.
3. Probe the test points in series with the circuit, and read the display.

CAUTION

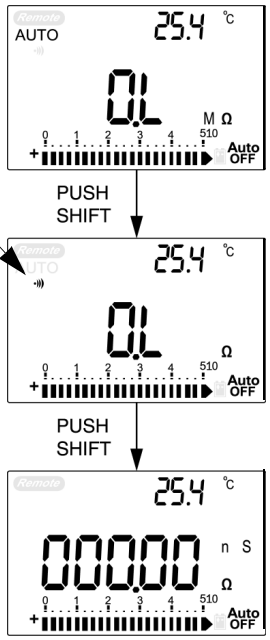
- If the current is ≤440 mA, connect the red and black test leads to input terminals **µA.mA(red)** and **COM(black).**
- If the current is >440 mA, connect the red and black test leads to input terminals **A(blue)** and **COM(black)**.

Performing Resistance, Conductance and Testing Continuity Measurements

1. Set the rotary switch to nS Ω .
2. Connect the red and black test leads to input terminals Ω(Red) and **COM**(black) respectively.
3. Probe the test points (by shunting the resistor) and read the display.
4. Press SHIFT to scroll through audible continuity, conductance and resistance tests as shown.



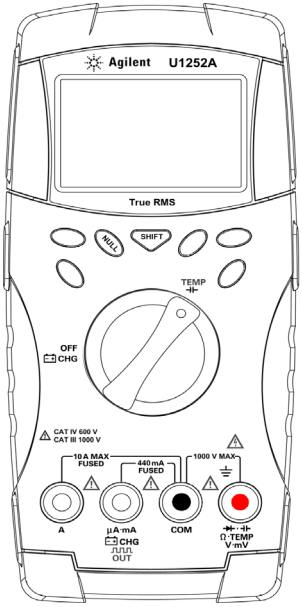
Audible Continuity



Performing Capacitance and Temperature Measurements

Capacitance

1. Set the rotary switch to TEMP .
2. Connect the red and black test leads to input terminals ⊣⊢ (red) and **COM**(black) respectively.
3. Use the red probe lead on the positive terminal of the capacitor while the black probe lead on the negative terminal.
4. Read the display.



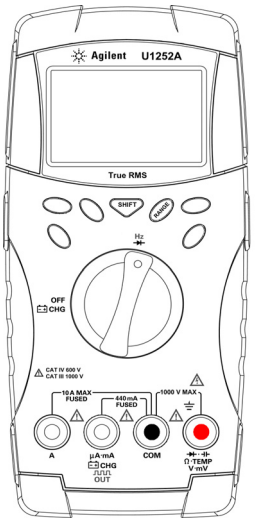
Temperature

1. Turn the rotary switch to TEMP position. Press SHIFT to select temperature measurement.
2. Plug the thermocouple adapter (with the thermocouple probe connected to it) into input terminals **TEMP**(red) and **COM**(black).
3. Touch the measurement surface with the thermocouple probe.
4. Read the display.

Frequency and Frequency Counter Measurements

Frequency Measurement

During AC/DC voltage or AC/DC current measurements, you can measure the relevant frequency by pressing Hz at anytime.

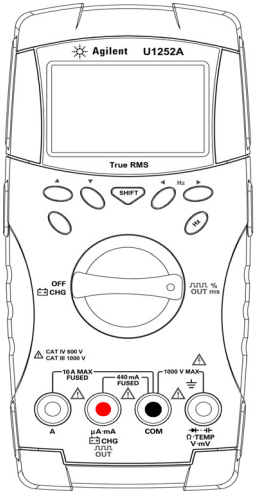


Frequency Counter Measurement

1. Set the rotary switch to Hz.
2. Press SHIFT to select the frequency counter (Hz) function. "—1—" on the secondary display means the input signal frequency is divided by 1. This accommodates for higher frequency range of up to 2 MHz.
3. Connect the red and black test leads to input terminals **V(red)** and **COM(black)** respectively.
4. Probe the test points and read the display.
5. If the reading is unstable or zero, press RANGE to select divison of input signal frequency by 100. This accommodates for higher frequency range of up to 20 MHz.
6. The signal is out of specification if the reading is still unstable after Step 5.

WARNING **Use the frequency counter for low voltage application. Never use the frequency counter on line power system.**

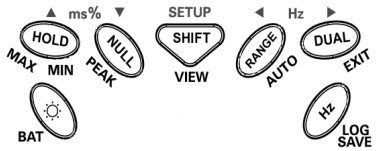
Square Wave Output (for U1252A only)



1. Turn the rotary switch to % ms OUT position. Default display setting is 600 Hz on secondary display and 50% duty cycle on primary display.
2. Press ◀ or ▶ to scroll through the available frequencies (there are 28 frequencies to choose from).
3. Press SHIFT to select duty cycle (ms) on primary display.
4. Press ▲ or ▼ to adjust the duty cycle. Duty cycle can be set for 256 steps and each step is 0.390625%. The display only indicates the best resolution with 0.001%.

NOTE Pressing Hz is the same as pressing ▶.

Features and Functions

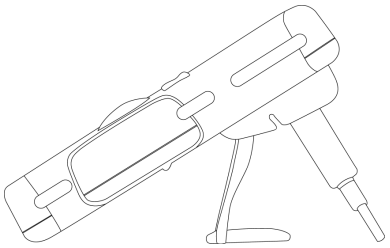


Actions	Steps
Turns ON backlight	Press ☼
Checks battery capacity	Press and hold ☼ for > 1 s
Freezes the measured value	Press HOLD
Starts MIN/MAX/AVG recording	Press and hold HOLD for > 1s
Offsets the measured value	Press NULL
Changes the measuring range	Press RANGE
Turns on auto range	Press and hold RANGE for > 1 s
Turns on dual display	Press DUAL
Starts manual data logging	Press and hold Hz for > 1s
Views the logged data	Press SHIFT for > 1s, press ▲ ▼ to scroll through the logged data
Clears the logged data	Press SHIFT for > 1 s, press Hz for > 1 s

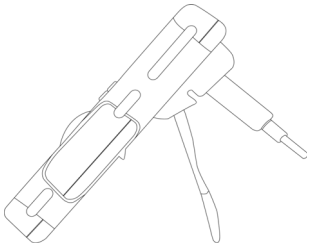
Input Terminals and Overload Protection

Measurement Functions	Input Terminal		Overload Protection
Voltage		COM	1000 V R.M.S.
Diode			1000 V R.M.S < 0.3 A short circuit current
Resistance			
Capacitance			
Temperature			
µA & mA	**µA mA**	**COM**	440 mA/1000 V 30 kA/fast-acting fuse
A	**A**	**COM**	11A/1000 V 30 kA/fast-acting fuse

Tilt Stand



Tilt Stand at 60°



Tilt Stand at 30°

Safety Information

This meter is safety-certified in compliance with EN/IEC 61010-1:2001, UL 61010-1 Second Edition and CAN/CSA 22.2 61010-1 Second Edition, CAT III 1000 V/ CAT IV 600 V Overvoltage Protection, Pollution Degree II. Use with standard or compatible test probes.

Safety Notices

CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

WARNING

A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

Safety Symbols

CAT III 1000 V	Category III 1000 V Overvoltage Protection
CAT IV 600 V	Category IV 600 V Overvoltage Protection
	Double insulation
	Earth ground
	Caution, risk of danger
	Caution, risk of electric shock

For further safety information details, refer to the **Agilent U1251A and U1252A Handheld Digital Multimeters User's and Service Guide**.

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